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Second record of *Hammarbya paludosa* (L.) Kuntze (Orchidaceae) in Italy

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Abstract

A new population of *Hammarbya paludosa*, a rare orchid typical of peat bogs, has been discovered in Cinque Valli (Valsugana, Roncegno municipality, province of Trento). In Italy, this species was previously known only in one other locality in the province of Bolzano, near Anterselva/Antholz (Rasun-Anterselva/Rasen-Antholz municipality).

Keywords

Flora of Italy, Trentino-Alto Adige/Südtirol region

Introduction

Hammarbya paludosa (L.) Kuntze (≡ *Malaxis paludosa* (L.) Sw.) is a tiny circumboreal orchid (Meusel et al. 1965). This species is typical of peat bogs and characteristic of the alliance *Rhynchosporion albae* W.Koch (Oberdorfer 2001). *Hammarbya paludosa* was discovered for the first time in Italy in 1979 by Franco Pedrotti in the Bolzano province, near Anterselva (Rasun-Anterselva municipality) in a small population with 15-20 individuals (Pedrotti 1980). In this site, there are currently very few individuals, which do not flower every year (Perazza and Lorenz 2013).

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Description of the new record

On June 18th 2014, during a field trip aimed at investigating some potentially interesting bogs, a small population of *H. paludosa* was discovered in Cinque Valli, on the southern side of Lagorai, Valsugana (municipality of Roncegno; WGS84: ca. 46°3'N 11°22'E; MTB: 9934/1). At the time of discovery, we observed a dozen plants, about half of them at the beginning of flowering. A plant was collected and deposited in the herbarium of the Museo Civico di Rovereto (ROV, acc. n. 67391). The plants were in full anthesis a month later, as documented by Giorgio Perazza with photos taken on July 19th 2014. One year later 10 flowering and about 20 sterile plants were counted by A. Bertolli, G. Tomasi and R. Vettori. This finding was already mentioned by Perazza in GIROS (2016) for the province of Trento without the exact location.

In the province of Trento this species was not found with certainty earlier. The only indication is found in a letter dated November 10th 1992 by A. J. B. Brilli-Cattarini (botanist in Pesaro who died in 2006) to F. Prosser, where the former informed that his collaborators in Berne found *H. paludosa* in *Sphagnum* samples collected in two localities of Val di Fassa (see Perazza 1993). However, investigation at these two sites, namely the High Val San Pellegrino and Val di Grepa, and considerations about the ecology of the species, led Perazza and Decarli Perazza (2005) to consider these records as erroneous. In any case, specimens of *H. paludosa* from the localities cited by Brilli-Cattarini are not present in the herbarium PESA (L. Gubellini, in litt.).

Discussion

Among the species so far assessed for the Red List of the Italian Flora (Rossi et al. 2013), *H. paludosa* is considered Critically Endangered (CR). The total number of fertile individuals, including the Cinque Valli station, occurring in Italy remains below 50; thus, following criterion D of the IUCN guidelines (IUCN 2012), the category should remain unchanged. In the Red List of the flora of the province of Bolzano (Wilhalm and Hilpold 2006), the species had also been assessed as Critically Endangered. Finally, *H. paludosa* should be also be added, again as Critically Endangered, in the Red List of the flora of the province of Trento (Prosser 2001).

Hammarbya paludosa, despite its ecological and phytogeographical significance, is not part of the species mentioned in the annexes of the Council Directive 92/43/EEC and in the Berne Convention. However, it is protected in the province of Trento based on Annex A of the regulation following the provincial law L.R.11/2007, which includes all wild Orchidaceae with the exception of the most common ones.

While the Anterselva population is inside a Natura 2000 area (Torbiera di Rasun/Rasner Möser), the Cinque Valli population is not in a protected area. Here *H. paludosa* grows in its typical environment, on *Sphagnum* mounds, in a restricted zone. The inconspicuous aspect of the plant, its delicate environment of growth, the absolute rarity in Italy and the desirability for photographers are factors that expose the popula-

Figure 1. *Hammarbya paludosa* (L.) Kuntze photographed in Cinque Valli (province of Trento, Roncegno municipality) on July 19th 2015 (photo by A. Bertolli).

tion of *H. paludosa* to trampling damage. For this reason exact coordinates of the site of occurrence are omitted.

The population of *H. paludosa* nearest to Cinque Valli is Anterselva, which is over 100 km in a straight line to the northeast (see Fig. 2). Pedrotti (1980) considered the

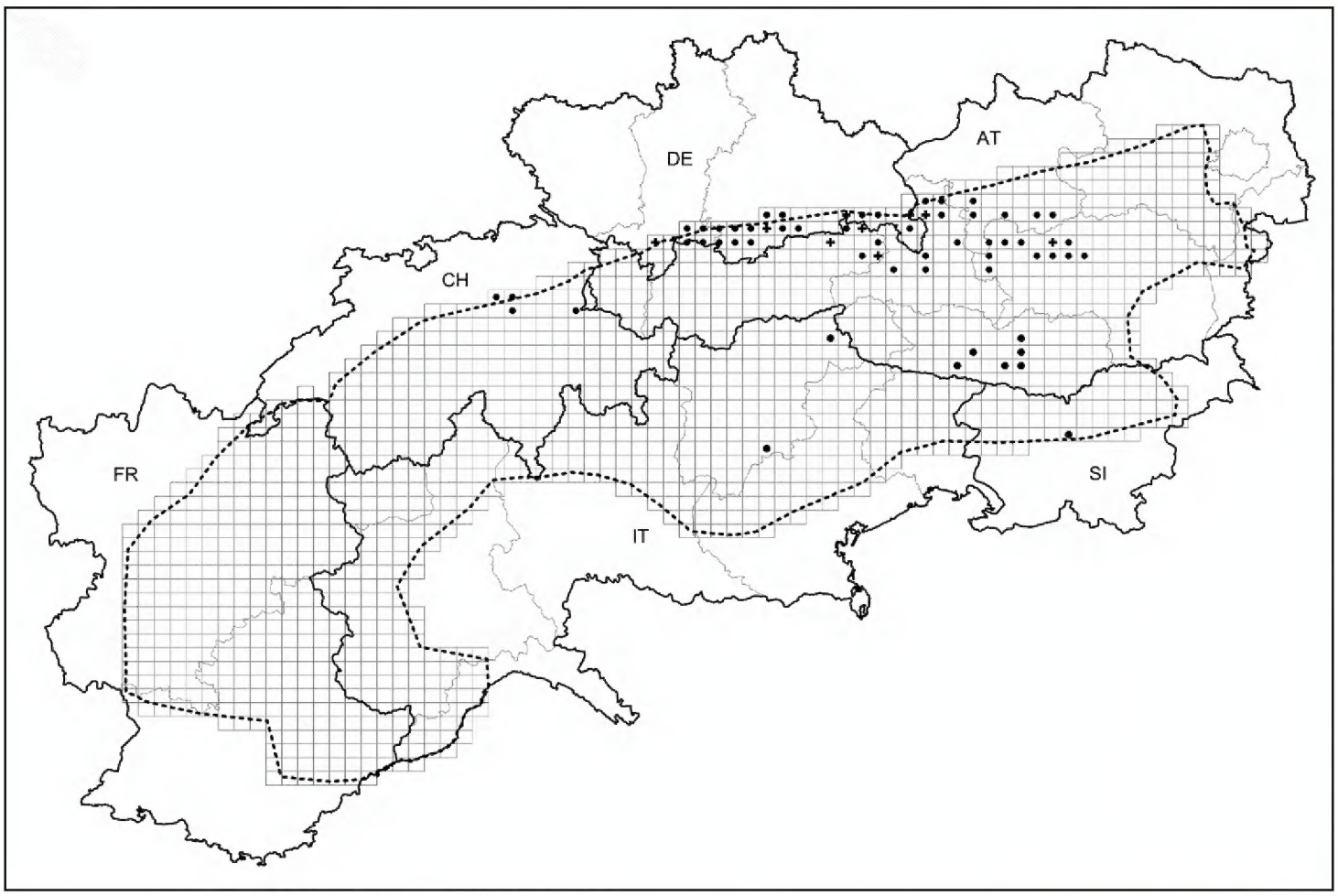

Figure 2. Distribution map of *Hammarbya paludosa* (L.) Kuntze in the Alps (dotted line) after the MTB-grid (see Ehrendorfer and Hamann 1965). The data are drawn from the following sources: https://www.infoflora.ch/it/ (accessed 24.06.2016) for Switzerland; Bettinger et al. (2013) for Germany; Griebl (2013) for Austria, with integrations by H. Niklfeld and K. Zernig (in litt.); Jogan (2001) for Slovenia. Dots: confirmed after 1950 ca.; crosses: not confirmed after 1950 ca.

latter as the only station on the southern side of the Alps, interpreting it as a relict. This should apply even more to the Cinque Valli population, being even more southern. Other rare bog species were also found in the province of Trento in recent years, such as *Carex buxbaumii* Wahlenb., *Carex chordorrhiza* L.f. and *Eriophorum gracile* W.D.J.Koch ex Roth (Bertolli and Prosser 2011).

The considerable altitude of the population of Cinque Valli, which is located at ca. 1400 m a.s.l., should also be highlighted. This may be the highest altitude reached by this species in the Alps and one of the highest in Europe; Dusak and Prat (2010) reported 1400 m as the maximum elevation in France, while for Bulgaria the maximum altitude reported is 1500 m (Peev et al. 2011).

Conclusion

The discovery of a second site of *H. paludosa* in Italy can raise some optimism about the chances of survival of this species in our country. The absence of protection of the Cinque Valli site is undoubtedly a problem, especially because it lies several kilometers away from the nearest Natura 2000 area.

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References

Bertolli A, Prosser F (2011) Segnalazioni Floristiche Tridentine. VIII. Annali del Museo Civico di Rovereto. Sezione Archeologia, Storia, Scienze Naturali 26 (2010): 269–318.

Bettinger A, Buttler KP, Caspari S, Klotz J, May R, Metzing D (Eds) (2013) Verbreitungsatlas der Farn- und Blütenpflanzen Deutschlands. Netzwerk Phytodiversität Deutschlands (NetPhyD) & Bundesamt für Naturschutz (BfN), Bonn - Bad Godesberg, 912 pp.

Dusak F, Prat D (Eds) (2010) Atlas des Orchidées de France. Biotope, Mèze (Collection Parthénope), Muséum national d'Histoire naturelle, Paris, 398 pp.

Ehrendorfer F, Hamann U (1965) Vorschläge zu einer floristischen Kartierung von Mitteleuropa. Berichte der Deutschen Botanischen Gesellschaft 78: 35–50.

GIROS (2016) Orchidee d'Italia. Guida alle orchidee spontanee. Seconda edizione. Il Castello, Cornaredo, Milano, 368 pp.

Griebl N (2013) Die Orchideen Österreichs. Freya Verlag, Linz, 479 pp.

IUCN (2012) IUCN Red List Categories and Criteria: Version 3.1. 2 ed. IUCN Species Survival Commission. IUCN, Gland, Cambridge. http://jr.iucnredlist.org/documents/redlist_cats_crit_en.pdf [accessed 24.06.2016]

Jogan N (Ed.) (2001) Materials for the Atlas of Flora of Slovenia. Miklavaž na Dravskem polju. Center za kartografijo favne in flora, 443 pp.

Meusel H, Jäger E, Weinert E (1965) Vergleichende Chorologie der zentraleuropäischen Flora, Vol. 1 (Text und Karten). Fischer-Verlag, Jena, 418 pp + 258 pp.

Oberdorfer E (2001) Pflanzenekologische Exkursionsflora für Deutschland und angrenzende Gebiete. Ulmer, Stuttgart, 1051 pp.

Pedrotti F (1980) *Hammarbya paludosa* (L.) O.Kuntze, specie nuova per la flora italiana. Studi Trentini di Scienze Naturali, Acta Biologica 56 (1979): 37–43.

Peev D, Petrova AS, Anchev M, Temniskova D, Denchev CM, Ganeva A, Gussev Ch, Vladimirov V (Eds) (2011) Red Data Book of the Republic of Bulgaria Vol. 1 (Plants and Fungi). Ministry of Environment and of Environment and Waters of Bulgaria (MEWB), Sofia. http://e-ecodb.bas.bg/rdb/en/vol1/Hampalud.html [accessed 24.06.2016]

Perazza G (1993) Le Orchidee del Trentino (Die Orchideen des Trentino). Mitteilungsblatt, Arbeitskreis Heimische Orchideen Baden-Württemberg, 25(1): 73–109.

Perazza G, Decarli Perazza M (2005) Cartografia delle orchidee tridentine (COT): mappatura delle orchidee spontanee in provincia di Trento (Italia settentrionale), aggiornamento generale. Annali del Museo Civico di Rovereto. Sezione Archeologia, Storia, Scienze Naturali 20 (2004): 153–339.

Perazza G, Lorenz R (2013) Le orchidee dell'Italia nordorientale. Atlante corologico e guida al riconoscimento. Edizioni Osiride, Rovereto, Trento, 447 pp.

Prosser F (2001) Lista Rossa della flora del Trentino. Pteridofite e Fanerogame. 89ª Pubblicazione Museo Civico di Rovereto, Rovereto, Trento, 109 pp.

Rossi G, Montagnani C, Gargano D, Peruzzi L, Abeli T, Ravera S, Cogoni A, Fenu G, Magrini S, Gennai M, Foggi B, Wagensommer RP, Venturella G, Blasi C, Raimondo FM, Orsenigo S (Eds) (2013) Lista Rossa della Flora Italiana. 1. Policy species e altre specie minacciate. Comitato Italiano IUCN e Ministero dell'Ambiente e della Tutela del Territorio e del Mare, Roma. http://www.governo.it/backoffice/allegati/71184-8693.pdf [accessed 24.06.2016]

Wilhalm T, Hilpold A (2006) Rote Liste der gefährdeten Gefäßpflanzen Südtirols. Gredleriana 6: 115–198.